which shows that the *ordinary* dark line is simply due to absorption? Put into the spectroscope, in place of the micrometer wires, an opaque diaphragm of tinfoil with two narrow slits in it at right angles to each other, thus . Put the sodium flame alone in front of the collimator slit, and by a little management one of the bright lines can be brought to shine through the vertical slit in the diaphragm, while it can also be seen as a sort of star in the horizontal one below. Now bring the lime-light behind the flame; the brightness of the vertical slit will at once considerably increase, but the horizontal slit below exhibits what was before the star, as an intensely *dark* spot in the midst of the bright continuous streak of colour, showing very strikingly that the apparent darkness of the line when no diaphragm is used, is a mere effect of contrast.

The paper referred to in the report as a discussion of "the want of achromatism of the ordinary achromatic object-glass," was a comparison of the secondary spectrum of a glass of the usual form and of great excellence, formerly used by me at Dartmouth College, with that of the instrument now used here. The latter is of the Gauss form, and is found to be decidedly superior in its colour corrections, while it is inferior in no other respect. C. A. YOUNG

Princeton, N.Y., January 5

Death of Captain Cook

ON reading a paper reprinted from the *Memoirs* of the Boston Society of Natural History, vol. i. part 3, entitled "Notes on the Volcanoes of the Hawaiian Islands," by William T. Brigham, A.M., I find at page 370 the following strange paragraph: "Starting from the western coast at Kealakeakua Bay—the memorable scene of Cook's *punishment*—the island may be described," &c.

With writers accustomed to the correct use of the English language, the word punishment infers crime. Its use here by Mr. Brigham may be only a bilious outpouring of New England puritanism, but as it stands on the face of a grave scientific paper, it is a permanent accusation against Capt. Cook, whose reputation and memory as one of our greatest navigators and geographical discoverers, deserve the reverence of every Englishman. If there be any charge against Capt. Cook's reputation or moral character, which can justify the slur gratuitously cast upon his character by Mr. Brigham, in the above passage, let it be substantiated by one of his countrymen in your pages or elsewhere, but if there be no grounds on which this grave slur is justifiable, then let it not stand unchallenged by your permitting this letter to appear in the pages of NATURE.

London, January 14 ROBERT MALLET

Electricity of the Blowpipe "Flame"

I HAVE discovered what I believe to be an important fact, viz., that the blue pyrocone produced by the blowpipe from an ordinary gas-burner is not merely magnetic, but possesses polarity, for its point *attracts the north pole of a compass, and repels the south pole.* W. A. ROSS

Acton House, Acton, W., January 17

Suicide of Scorpion

I MUST crave a bit of your space to beg Dr. Hutchinson (*vide* NATURE, vol. xxi. p. 226) to look to *facts* when he would refute anything based upon *facts*, and not trust to *inferences.*

My experience concerning *scorpion suicide* points to the *fact* that the "*central temperature*" of a circle of glowing charcoal embers (*i.e. glowing* when first placed on the ground in the open air, and left to die out gradually), one foot inner diameter, was never greatly in excess of the summer heat, often above 40° C. in the shade in these parts, and no doubt greater at Peshawar. I keep no record of this, but I have just made a circle of *glowing* embers of the size of walnuts, one foot in diameter, on the kitchen floor, before the open window, suspending immediately a Casella standard in the centre and one inch from the ground, and a highly graduated Secretan, two inches from charcoal and one inch from the floor, both bulbs free, the result being:—

Centre.—After three minutes, 49°·50 Cent.; at five minutes it had fallen to 46°, and continued to fall gradually.

Two inches from charcoal.—The heat declined gradually from 76° C., to which it rose quickly in the beginning; general temperature of kitchen = 15°·25 Cent. So much for Dr. Hutchinson's *glowing inference!* which points to little short of stupidity on my part.

The *fact* is that so far from being cruelly *scorched*, the scorpions I have watched did not appear out of their element, except when they tried to escape; then they quickly receded before burning themselves, and it was after many such attempts that they "pierced their head with their sting and died," as I have stated.

As to your correspondent's theory that "the *heat kills* the scorpion," it does not follow from the experiments as I conducted them; and as for his *defying* any one to *prove* that the insect dies in consequence of the self-inflicted sting, for my part I am no entomologist, and consequently am unable to make the necessary post-mortem examination. I simply state what I saw several times with a very good pair of eyes, though not, of course, "patent double-million-magnifying gas microscopes of *hex*tra power." I now confirm the statement, and submit that if Dr. Hutchinson's paternal solicitude for *his* scorpions (which feeling, mind, I respect) prevents him making such cruel (?) tests, he should be content to doubt, and not pit unsound *inferences* against tangible *evidence*, much less hurl defiance at the heads of practical men. F. GILLMAN

Prov. Jaen, Linares, Spain, January 12

The Fertilisers of Alpine Flowers

A FEW years ago I stated my belief in this journal that lepidoptera are far more frequent visitors and fertilisers of flowers, and that from this cause by far more flowers are adapted to cross-fertilisation by lepidoptera, in the Alps than in the lowland. But it was then impossible for me to give a sufficient number of facts. Now, therefore, having continued my observations in the Alps during six summers, and being about to prepare a detailed work on "Alpine Flowers, their Fertilisation by Insects, and their Adaptations to them," I will here give a statistical statement of all visits of insects on flowers which I have observed (1) in the lowland, (2) in the Alps generally, (3) above the boundary of trees; the numbers under 1 being extracted from my work, "Die Befruchtung der Blumen durch Insekten, &c." (Leipzig, 1873).

Tabular Statement of the Visits of Insects to Flowers, observed by myself

	1. In the Lowland.		2. In the Alps generally.		3. Above the boundary of trees.	
	a. Species of insects.	*b.* Different visits to flowers.	*a.* Species of insects.	*b.* Different visits to flowers.	*a.* Species of insects.	*b.* Different visits to flowers.
Coleoptera	129	469	83	337	33	134
Diptera	253	1,598	348	1,856	210	930
Hymenoptera... ...	368	2,750	183	1,382	88	519
Lepidoptera	79	365	220	2,122	148	1,190
Other insects	14	49	7	15	3	6
Total	843	5,231	841	5,712	482	2,779

Hence of 1,000 different visits to flowers (differing either by the species of flower or by the species of insect) those by—

	1. In the Lowland.	2. In the Alps generally.	3. Above the boundary of trees.
Coleoptera are	89·66	59	48·22
Diptera ,, ...	305·49	324·93	334·65
Hymenoptera ,, ...	525·71	241·95	186·76
Lepidoptera ,, ...	69·77	371·50	428·31
Other insects ,, ...	9·37	2·62	2·16
	1000·00	1000·00	1000·00

Lippstadt, January 10 HERMANN MULLER

"Ideal" Matter

IN NATURE, vol. xxi. p. 185, you published a letter from Herr v. Nudeln, in which he alluded to the researches of Pro-

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fessors Hans and Lobwirmski respecting ideal matter of various degrees. Can you inform me whether any English publications have appeared on this subject, and if not, what foreign works would be best suited to give an insight of the results that have been arrived at to one who can devote but a limited time to such investigations?

Surely the conclusion suggested by your correspondent (viz., that the moon in its composition closely resembles caseine) is intended only as a joke; for, assuming the equation given,

$$M = C_m N_n O_p H_q,$$

and even granting that the quantities $m\,n\,p\,q$ are in such proportion as to make the right-hand member of the above equation assume the form of the chemical formula for caseine, there is surely no reason why the mass of the moon (which your correspondent has chosen to denote by C) should be interpreted as carbon, nor its direction of motion N as nitrogen, nor its velocity O as oxygen. PERCY R. HARRISON

Sun-Spots

IN the "Life of Charlemagne," written by Eginardus, one of the Emperor's household, and afterwards Abbot of St. Bavon's, in Ghent, occurs the following passage:—

"Per tres continuos vitæque termino proximos annos et solis et lunæ creberrima defectio, ac in sole macula quædam atri coloris septem dierum spatio visa."

"In three successive years nearest to his death [there were] very frequent eclipses of the sun and moon, and in the sun there were seen certain spots of a black colour, for the space of seven days."

This life, written between 814 and 843, and referred to by the writer's contemporaries, has been collated with several MSS. by the Bollandists, who give it in full in their Acta Sanctorum under January 28. It is a curious, if not a valuable, contribution to the early history of sun-spots, and suggests questions which some of your correspondents may care to consider.

HENRY BEDFORD

All Hallows College, Dublin, January 15

A Clever Spider

IN a letter I have just received from my brother at Rondebosch, near Cape Town, he narrates the following, which I thought might interest some of the readers of NATURE:—

"On Friday I was much interested in watching a spider and male glow-worm. The spider was a common long-legged house spider who had a web in the corner of the room. It was an aristocratic spider, in fact. Presently a male glow-worm flew into the web, and in a few minutes the spider had wound him round and round till no Egyptian mummy was more securely housed. Just as this operation was being finished, a second glow-worm flew into the web, *a long way from the first*. Off goes the spider, and soon he, too, was encased in silk. Then I noticed that the spider went three times backwards and forwards between the head of glow-worm No. 2 and a main strand of his web. After this he went round cutting all the threads around the glow-worm until it hung by the head strands alone. The spider then fixed a thread to the tail end, and by it dragged the carcase in the direction of glow-worm No. 1 (presumably the larder). As soon as the rope attached to the head was taut, the spider made the rope he was pulling by fast to a strand of the web, went back, cut the head ropes, attached himself to the head, and pulled the body towards the larder, until the tail rope was taut. In this way, by alternately cutting the head and tail ropes and dragging the glow-worm bit by bit, he conveyed it to the larder, where it hung alongside mummy No. 1. Another presently flew in. After he was enwrapped in silk, the spider, whether on purpose or not I cannot say, cut the last thread by which he hung, and dropped him to the ground. Whether he thought that this morsel might get 'high' before he could eat it I cannot say. I should say that the prey was some twenty times the weight of the captor." LL. A. MORGAN

St. Thomas's Hospital, Westminster, January 12

Erratum in Paper on Tidal Friction

AN erratum has been pointed out to me in my article in NATURE, vol. xxi. p. 235, and I should be glad to correct it. The forty-second line of the second column of p. 236 runs:—"so that the earth will rotate faster than the moon revolves." By a slip of the pen I here wrote "faster" instead of "slower." G. H. DARWIN

January 16

AFGHAN ETHNOLOGY

THE events now in progress on the north-western frontier of British India have for the third time in this century directed the serious attention of statesmen, historians, and ethnologists to the remarkable people who give their name, or rather one of their names, to the north-eastern division of the Iranian table-land. During the empire of the Sassanides the whole of this region, from Persia proper to the right bank of the Indus and from the Koh-i-Baba, Ghor and other western continuations of the Hindu-Kûsh to the Arabian Sea was known as Khorasan, that is, Khoristan, the Land of the Sun or the East. This term, with the gradual reduction of the Persian sway, has shrunk to the proportions of a province on the north-eastern frontier of the Shah's estates, and has been replaced further east by the ethnical expressions Afghanistan and Balochistan, the lands of the Afghans and Baloches. But these expressions, as so frequently happens, are so far misnomers and deceiving that the lands in question harbour many other peoples besides those from whom they are now named. In Balochistan, for instance, the most numerous, powerful, and influential element is not the Baloch at all, but the still unfathomed Brahûi, from which circumstance it has even been suggested that the country ought rather to be called Brahuistan. A similar suggestion could not certainly well be made with regard to Afghanistan, for here there is no other people who can for a moment compare with the Afghans in numbers or political importance. Still the subjoined rough estimate of the population according to nationalities will show that it is very far from being homogeneous:—

Afghans and Pathâns ...	Iranian stock	3,520,000
Tajiks	Iranian stock	1,000,000
Hindkis	Hindu stock	500,000
Hazaras and Aimaks ...	Mongolo-Tatar stock	600,000
Kataghâns	Tûrki stock	200,000
Badakshis	Galcha stock	100,000
Baloches	Iranian stock	100,000
Kizl-Bashes	Tûrki stock	75,000
Kohistanis and Siah Posh	Galcha stock	50,000
		6,145,000[1]

It will be noticed that in this table are included all the races forming part of the present Afghan political system taken in its widest sense, whose northern frontier is now marked by the upper course of the Oxus. Before dealing with the Afghans proper, with whom we are chiefly concerned, a few words may be devoted to each of the minor elements, all of whom continue to keep aloof from their neighbours, seldom or never intermarrying, and mostly retaining their own national customs, dress, religion, and speech. No general amalgamation has, in fact, yet taken place of these heterogeneous ingredients, so that we cannot speak of the Afghan in the same sense as we do of, for instance, the Italian, French, or English nations. The Afghan race, though by far the most numerous, has been politically predominant only since the death of Nadir Shah (1747), and its rule has been far too checquered by intestine strife and foreign troubles to have allowed time or opportunity for the slow process of

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[1] This figure exceeds by about a million that usually given as the total population of Afghanistan. But recent exploration has shown that many of the tribes are much more numerous than had been supposed, and as our knowledge of the country increases, it will probably be found to contain even a greater population than that here given.

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